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Hemilä, Harri

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Vitamin C, Cholesterol, and the Nutritional Recommendations

There has been a long-standing controversy over whether vitamins are beneficial in diseases other than overt deficiencies. The authors of the Recommended Dietary Allowances (RDA) monograph conclude that there is no sound evidence to suggest that vitamin C in amounts greater than the recommended dose, 60 mg/day, is beneficial for the common cold or that it decreases elevated plasma cholesterol levels.¹ In fact, about 20 double-blind studies have consistently shown that vitamin C (ca. 1 g/day) ameliorates the symptoms, or shortens the duration, of common cold episodes.² Accordingly, the negative conclusions in the RDA monograph are not fully justified.

The effect of vitamin C on plasma cholesterol has been extensively studied,^{3,4} but only 2 intervention studies^{5,6} are mentioned in the RDA monograph. A study by Ginter et al⁵ is referred to as a suggestion that high doses of vitamin C may decrease elevated cholesterol levels, but an earlier study by Peterson et al⁶ is referred to as conclusive disproof of that suggestion. However, the subjects in the former study had a low initial plasma vitamin C level,⁵ whereas those in the latter study had a high initial level.⁶ A high initial level indicates that supplementation cannot be expected to have any notable effects. Moreover, neither of the 2 studies had a placebo group. A decrease in elevated cholesterol levels as a result of vitamin C supplementation has also been found in 3 placebo-controlled studies,⁷⁻⁹ although none of these studies is mentioned in the RDA monograph.¹

It is often assumed that an intake of 1 g of vitamin C per day should be considered a pharmacologic level.¹ Yet, the diet of our ancestors^{10,11}

apparently contained 0.4 to 2 g/day of vitamin C, suggesting that such levels are not unfamiliar to human physiology (i.e., not pharmacologic). Furthermore, the RDA recommendations are based on a vague concept of "nutrient need," which does not seem to have a valid biochemical basis.¹²

The RDA recommendations may be highly useful for specific purposes such as setting a minimal standard of nutrition in order to prevent overt deficiencies in institutions, etc. Nevertheless, more attention should be given to the findings that the recommended levels are not optimal for sickness prevention or therapy,^{1,12-14} and that in certain cases much larger doses may be beneficial.^{2-4,14}

Harri Hemilä, PhD
Helsinki, Finland
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